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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,630	04/14/2004	Claudio Adragna	02-AG-385/GC	6255
23334	7590	02/01/2006	EXAMINER	
FLEIT, KAIN, GIBBONS, GUTMAN, BONGINI & BIANCO P.L. ONE BOCA COMMERCE CENTER 551 NORTHWEST 77TH STREET, SUITE 111 BOCA RATON, FL 33487			BEHM, HARRY RAYMOND	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/824,630	Applicant(s) ADRAGNA ET AL. <span style="float: right;">(PM)</span>	
	Examiner Harry Behm	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-11 and 15-19 is/are rejected.
- 7) ☒ Claim(s) 4-6, 12-14 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/14/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Vss. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 7-8, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goerke (5,861,737) in view of Huang (6,841,977).
5. With respect to Claim 1, 7-8 and 15-19 Goerke discloses a circuit for switching the minimum operating voltage from the second voltage value [0V] to the first voltage value [V<sub>cc</sub> –diode drop] if the load of the switching power supply is greater than a predetermined load [zero] and the supply voltage is greater than the first voltage value [V<sub>cc</sub>], wherein the minimum operating voltage can assume at least the first voltage value and the second voltage value, and the first voltage value is greater than the second voltage value. He also discloses an overcurrent protection circuit to open the power switch (Fig. 2 10) by grounding a reference when the current exceeds a threshold. Goerke does not disclose a circuit for switching the minimum operating voltage from a first voltage value to a second voltage value under conditions of low or null load of the switching power supply. Huang discloses a circuit to ground a point when a soft-start indication from the PWM is received. It would have been obvious to one of ordinary skill in the art at

the time of the invention to connect the circuit of Huang (Fig. 5 204) in place of or in parallel to the overcurrent block (Fig. 2 80) of Goerke. The reason for doing so is to improve the efficiency of the design and prohibit  $V_{out}$  from rising too high during no load or light load conditions.

6. With respect to Claim 2 and 18, Goerke in view of Huang discloses the circuit according to claim 1, wherein the at least one switch switches the minimum operating voltage (Goerke Fig. 2  $V_{out}$ ) from the first voltage value [ $V_{cc}$  – diode drop] to the second voltage value [0v] when a voltage proportional to the load of the switching power supply is less than a first reference voltage (Huang Fig. 5  $V_{ref}$ ).
7. With respect to Claim 3 and 19, Goerke in view of Huang disclose the circuit according to claim 1, wherein the at least one switch switches the minimum operating voltage from the second voltage value [0v] to the first voltage value [ $V_{cc}$ -diode drop] when a voltage proportional to the load of the switching power supply is greater than a first reference voltage [zero] and the supply voltage [ $V_{cc}$ ] is greater than the first voltage value.
8. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goerke (5,861,737) in view of Huang (6,841,977) and further in view of Hall (US 6,597,221).
9. With respect to Claim 9, Goerke discloses a circuit for soft starting  $V_{out}$  to  $V_{ref}$  and an overcurrent protection circuit to open the power switch by grounding a reference when the current exceeds a threshold. Goerke does not disclose to

open the power switch under no load or light load conditions. Huang teaches a circuit to ground a point when a soft-start indication from the PWM is received. Hall teaches an undervoltage lockout circuit to open the switch (Fig. 2 77) when the supply voltage is less than a reference. It would have been obvious to one of ordinary skill in the art at the time of the invention to add the circuit of Huang (Fig. 5 204) and the circuit of Hall (Fig. 2 60) in parallel to the over current circuit (Fig. 2 80) of Goerke. The reason for doing so is to improve the efficiency of the design and prohibit Vout from rising too high during no load or light load conditions and to provide an undervoltage lockout scheme to guarantee a clean start up.

10. With respect to Claim 10, Goerke in view of Huang and Hall discloses the circuit according to claim 9, wherein the control voltage is the control voltage of the switching power supply (Huang Fig. 5 210).
11. With respect to Claim 11, Goerke in view of Huang and Hall discloses the circuit according to claim 9, wherein the control voltage (Huang Fig. 5 210) is a voltage proportional to the load of the switching power supply [PWM is proportional to the load].

***Allowable Subject Matter***

12. Claims 4-6, 12-14 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

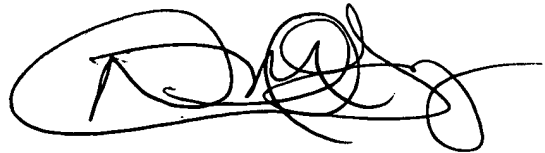
13. The following is an examiner's statement of reasons for allowance: The prior art does not suggest in combination with the limitations of the base claim and any intervening claims using a third voltage value in the undervoltage lockout circuit.
14. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi (US 6,980,444) and Chen (US 6,479,972) disclose an undervoltage lockout strategy. Bazinet discloses using an integrated circuit for a switching power supply.
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Behm whose telephone number is 571-272-8929. The examiner can normally be reached on Business hours EST.
17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2838

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'David Gray', with a large, stylized initial 'D' and 'G'.

David Gray  
Primary Examiner

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